

What claimed is :

1. A method of a high stability selectable hydrogenate catalyst producing and using for DMCHD manufacturing.
- (1) A preparing procedure for  $\text{Ru}/\text{Al}_2\text{O}_3$  catalyst including:
  - a. putting 110 grams  $\text{Al}_2\text{O}_3$  into a triple neck bottle in a suction of vacuum ;
  - b. heating said bottle a temperature of  $110^\circ\text{C}$  for 6 hours ;
  - c. cooling to atmospheric temperature then stopping vacuum ;
  - d. to add a solution of 4.6 grams  $\text{Ru}/\text{Cl}_3$  into said bottle and heating at a temperature of  $60^\circ\text{C}$  ;
  - e. to dry solution of said solution by vacuum suction ; and
  - f. to heat said bottle in a heater at a temperature of  $120^\circ\text{C}$  for 16 hours to preparation process therefore.
- (2) An activity raising procedure for said catalyst including:
  - a. taking the intermediate product of  $\text{Ru}/\text{Al}_2\text{O}_3$  catalyst out from said bottle which is prepared from step (1), and putting said intermediate product into a stainless steel breeder ;
  - b. to add hydrogen gas into said breeder with a predetermined velocity and heated at a temperature of  $450^\circ\text{C}$  for 2 hours ; and
  - c. cooling to atmospheric temperature and then adding a small quantity of air for passivate the surface of said catalyst so as to get high stability catalyst ready for selectable hydrogenating in a DMCHD manufacturing process therefore.
- (3) A DMCHD manufacturing process which said high stability catalyst is used for a selectable hydrogenating reaction

including:

- a. putting said Ru/Al<sub>2</sub>O<sub>3</sub> catalyst onto a fixing bed of a reactor ;
  - b. to dissolve DMT(dimethyl terephthalate) in to ethyl acetate solution ; and
  - c. guiding DMT solution into said reactor with a predetermined velocity for a selectable hydrogenate reaction to provide a high yield capacity capacity of DMCHD manufacturing in high stability for a long term.
2. A method for producing high stability selectable hydrogenate catalyst according to step(1) of claim 1, wherein said Al<sub>2</sub>O<sub>3</sub> and RuCl<sub>3</sub> has a fixed ratio of 110:4.6075 by wt..
  3. A method for producing high stability selectable hydrogenate catalyst according to step(2) of claim 1, wherein said predetermined velocity of hydrogenate gas is 10 to 40 ml/min.
  4. A DHCHD manufacturing process according to step(3) of claim 1, wherein a reaction temperature in said reactor is 100°C to 140°C.
  5. A DMCHD manufacturing process according to step(3) of claim 1, wherein a reaction pressure in said reactor is 700 to 800 psi.
  6. A DMCHD manufacturing process according to step(3) of claim 1, wherein said MDT solution guided into said reactor has a velocity of 12 to 48 LHSV(h<sup>-1</sup>).
  7. A DMCHD manufacturing process according to step(3) of

claim 1, wherein said high production to step(3) of claim 1,  
wherein said high production ratio is over 90%.

8. A DMCHD manufacturing process according to step(3) of  
claim 1, wherein said catalyst has a long stability duration  
of 500 to 600 hours activation.

10050818-011802